Communicable Disease Report

Hawai'i Department of Health
Communicable Disease Division

March/April 2000

Active Surveillance for Hansen's Disease in Hawai`i

Background

Active surveillance for early detection of Hansen's disease (HD) was added to the Department of Health's (DOH) HD program during the last three years.

HD is no longer transmissible after just a few days of treatment. A complete course of treatment cures the disease. If treatment is started early, there usually is no permanent skin, nerve or muscle damage.

Since the early 1980's the approach used in Hawai`i to make an early diagnosis was dependent on observant doctors and nurses in the community recognizing the early signs and symptoms. After a diagnosis of HD was made, a contact review was performed. Anyone who lived in the same household for at least one month was identified as a contact. Since the incubation period is long, contacts are screened annually by DOH staff for five years. The screening process consists of taking a brief history and doing a skin and nerve exam.

During the past three years it has come to the attention of the HD program that migrants in Hawai`i from neighboring Pacific Island countries often do not have access to primary medical care. Therefore, the usual process of depending on referrals from primary care physicians has not insured early referral of clinical cases of HD for this group of people.

However, program staff have found a variety of ways to meet with groups of high risk people. They perform screening exams while giving appropriate information regarding signs of the disease. The educational process encourages self-referral if new skin or nerve symptoms occur.

Case Report

The following case presentation demonstrates the effectiveness of active surveillance combined with health education in a population with a high prevalence rate of HD.

A 23 year-old man from a Compact of Free Association country arrived in Hawai`i in February, 1999. While having a tuberculosis test at Lanakila, he was interviewed by the Lanakila Early Access Program (LEAP) who referred him to the Hansen's Disease Community Program. On July 15, 1999, two HD nurses performed a skin and nerve screen. They found several old scars and a dry, dark colored lesion on his foot. None of the skin lesions were insensitive and HD was not suspected. A brief description of HD was provided. He denied having come into contact with anyone with HD. He was advised to see a dermatologist if the lesion on the foot was a concern to him.

Three weeks later he went to an emergency room with a new skin lesion under his arm. He was concerned it might be "leprosy." He was treated for tinea corporis. Scattered lesions on his arms and trunk were noted by the examining physician. In early September, he visited another emergency room and was given a topical steroid for acute dermatitis. A month later, he was seen by a dermatologist who did a skin biopsy. The tissue diagnosis confirmed the clinical impression that this was borderline tuberculoid HD. The inflamed nature of his lesions were associated with reversal reactions which follows a change in cell-mediated immunity and is one of the reasons a person presents to a medical center.

The process of active surveillance in a high risk population may immediately identify active clinical disease or may increase the awareness of the person to the necessity of self-referral if new signs and symptoms occur.

Importance of Early Diagnosis

The early diagnosis of Hansen's disease is based on a skin and nerve examination supported by a biopsy. There are

continued on page 8

Emerging Antibiotic-Resistant Gonorrhea Infections in Hawai`i

Fluoroquinolone antibiotics, such as ciprofloxacin and ofloxacin, should no longer be used to treat gonorrhea infections in Hawai`i. The Department of Health (DOH) recently identified a marked increase in the prevalence of quinolone-resistant gonorrhea in the State.

Ciprofloxacin-resistant (Cipro-R) *N. gonorrhea* increased from 1.4% of positive gonorrhea isolates in 1997 to 9.5% in 1999. Quinolone-resistant isolates are known to be endemic in Asia. Fifty percent of the patients with Cipro-R gonorrhea identified in 1998 and 1999 reported travel to Asia, or had sex partners with such travel, while the remaining 50% reported no such exposure. This suggests that some patients acquired Cipro-R gonorrhea in Hawai`i.

In addition to Cipro-R gonorrhea, a patient from Hawai`i was recently identified with a gonorrhea isolate with a Minimum Inhibitory Concentration (MIC) of >8 to azithromycin. This is the first known reported case of azithromycin-resistant gonorrhea. Most of the gonorrhea isolates in Hawai`i have an MIC <0.25 to azithromycin.

Patient Management

The Hawai`i DOH recommends the following for managing patients in the State with gonorrhea:

1. **Diagnosis:**
   Consider gonococcal infection in the differential diagnosis of patients presenting with presumptive urethritis or cervicitis. If the patient presents with a presumptive gonorrhea infection, a gonorrhea culture or genprobe test is recommended. Antibiotic sensitivity tests should be run on positive gonorrhea cultures.

2. **Treatment:**
   For patients with uncomplicated gonorrhea infection in Hawai`i, the recommended treatment is one of the following antibiotics:

   Ceftriaxone, 125 mg. IM, in a single dose;

   Cefixime, 400 mg. orally, in a single dose; or

   Spectinomycin, 2 Gm. IM, in a single dose as an alternative for those unable to tolerate a cephalosporin antibiotic.

   Routine dual therapy for possible co-infection with chlamydia is recommended with one of the following antibiotics:

   Doxycycline, 100 mg, orally, twice daily for 7 days, or

   Azithromycin, 1 Gm. orally, in a single dose.

3. **Reporting:**
   Gonorrhea is a reportable disease. When diagnosed, immediately notify the Sexually Transmitted Disease (STD) Prevention Program Office at (808) 733-9281 in Honolulu, 241-3563 on Kaua`i, 984-8213 on Maui or 933-0912 on Hawai`i.

   In addition, Disease Intervention Specialists (DIS) are available to assist in patient education and partner counseling and referral. For assistance please contact the DIS Supervisor at (808) 733-9281. For all cases of antibiotic-resistant gonorrhea infections, a DIS will be contacting your patient for additional information associated with the resistant infection.

4. **Counseling:**
   The following history should be obtained from all gonorrhea patients for the 60 day period prior to diagnosis:
   a. Name(s) and locating information of patient's sex partner(s);
   b. Travel history, including that of their sexual partners; and
   c. Name and reason of any antibiotic taken.

The STD Program Office will contact sex partners for medical referral. In addition, this information will be used to determine if patients acquired their infection locally or abroad, and to evaluate other factors possibly associated with antibiotic-resistant infections.

Patients with any STD should be counseled about the risks of unprotected sexual relations, and for travelers, about the high prevalence of sexually transmitted diseases in many countries. In addition, all patients diagnosed with an STD should be encouraged to undergo HIV testing.

The STD Prevention Program appreciates the continued support of primary care providers in the prevention and control of STD's in Hawai`i. For more information, please call Roy Ohye or Venie Lee of the STD Prevention Program at (808) 733-9281.

Submitted by M. Venie Lee, M.P.H., Epidemiological Specialist, STD Prevention Program, STD-AIDS Prevention Branch.

Communicable Disease Report

Communicable Disease Division	586-4580
Epidemiology Branch	586-4586
Tuberculosis Disease Control Branch	832-5731
Hansen's Disease Control Branch	733-9831
STD/AIDS Prevention Branch	733-9010
STD Reporting	733-9289
AIDS Reporting	733-9010
Information & Disease Reporting	586-4586
After-hours Emergency Reporting	247-2191 (State Operator)
After-hours Neighbor Island Emergency Reporting	800-479-8092

The Health State
HAWAI'I STATE DEPARTMENT OF HEALTH

Editor:
David Sasaki, DVM, MPH

Published bimonthly by the Hawai'i Department of Health, Communicable Disease Division, 1250 Punchbowl Street, Honolulu, Hawai'i 96813
Postage paid at Honolulu, Hawai'i

Clinical Diagnosis and Management of Leptospirosis

Editor's Note: The author of this article, Dr. Jeffrey Goodman of Kilauea, Kaua`i, has probably diagnosed more leptospiro - sis in his 28 year career than any other physician in the United States. In 1996, he accounted for one-half (11) of the cas - es reported from Kaua`i, the island with the highest incidence rate for the disease. In this article, he shares his approach to clinical diagnosis and management of leptospirosis.

Background

Initially, the diagnosis of leptospirosis is presumptive. When a patient first presents, no single immediately available diagnostic test result, physical finding or subjective complaint will confirm the diagnosis. Yet the clinician must use all of these faculties to make the diagnosis within five days of onset of disease. A detailed history and physical examination are essential for the clinical diagnosis of leptospirosis. A delay in diagnosis and appropriate therapy may have life threatening consequences.

Leptospirosis is a bi-phasic illness. Its presentation may vary from a mild nonspecific illness to a fulminating, fatal disease. It usually starts with a febrile, "flu-like" phase occasionally followed by severe syndromes such as icteric leptospirosis known as Weil's disease, pulmonary hemorrhage and/or renal failure. Leptospirosis starts with a rapid onset of fever, headache and bodyaches. After 5-7 days, the patient may experience a short remission lasting 1-2 days and feel well. The more severe forms of leptospirosis may follow this brief remission. For purposes of this article, acute leptospirosis refers to the first phase of the illness - the time most patients first seek medical care.

History, Physical Examination and Laboratory Findings

The following highlights prominent features of the early manifestations of the disease.

- Incubation: Ranges from 2 – 21 days. The average is 10 days after exposure.

- History:
  A. Exposure to surface waters (rivers, streams, ponds, mud)
    1) Occupational (taro, aquaculture, prawning)
    2) Recreational (kayaking, fresh water and river mouth swimming, surfing near river mouths)
  B. Clinical
    1) Headache - "Worst headache I have ever had"
    2) "I've never been this sick"
    3) Photophobia - Common
    4) Muscle Aches, severe - especially in the legs
    5) Gastrointestinal - Nausea, vomiting
    6) General - Fever, chills

- Physical Examination Findings:
  A. Ill-appearing
  B. Conjunctival suffusion (engorged blood vessels without pain or discharge)
  C. Tender hepatomegaly
  D. Pulmonary congestion
  E. Muscle pain and tenderness, not only subjective pain; most obvious in the legs
  F. Rash is inconsistent, or
  G. The absence of findings in an ill-appearing patient

- Initial Laboratory Findings:
  A. Common:
    1) Complete Blood Count:
      a. White Blood Cell Count (WBC) - Often not helpful (normal or slightly elevated)
      b. Platelets - frequently decreased
    2) Liver Function - Slightly elevated levels of Aspartate Transaminase (AST), Alanine Transaminase (ALT) - (Levels in viral hepatitis are much higher)
    3) Decreased serum albumin - Low normal may also be seen in leptospirosis.
    4) Urine:
      a. "Dirty" with trace amount of Red Blood Cells
      b. WBC - trace
      c. Protein - present
      d. Mucus threads
      e. Casts (Uncommon, but supportive of leptospirosis)
    5) Renal Function (Blood Urea Nitrogen, Creatinine) - Usually normal in the first week. Renal failure may occur in the second phase of severe leptospirosis, and may require peritoneal or hemodialysis.
  B. Uncommon but suggestive: Other Blood Chemistries
    1. Elevated amylase
    2. Elevated creatinine kinase
    3. Elevated aldolase

Differential Diagnoses

Differential diagnoses of leptospirosis in the **returned traveler** include viral hepatitis, dengue, malaria, rickettsial infection, typhoid fever, or relapsing fever. Leptospirosis, dengue and typhoid may all show a temperature/pulse differential (the pulse may not increase as the fever rises). Leptospirosis, dengue, typhoid may all have a "saddle-back" bi-phasic fever.

Differential diagnoses in **Hawai`i residents** include: influenza, murine typhus, viral hepatitis, cholangitis, pancreatitis and gastroenteritis. Meningitis, including viral, meningococcal and angiostrongyliasis should also be considered.

Laboratory Diagnosis

Leptospirosis is most commonly diagnosed serologically, which is the most sensitive diagnostic method, assuming acute and convalescent samples are submitted. However, blood cultures may provide the quickest confirmatory diagnosis. Growth has been detected as early

continued on page 4

Leptospirosis

continued from page 3

as three days after inoculation but may take as long as six weeks. Cultures should be inoculated into media at bedside to maximize recovery of spirochetes.

- **Blood culture.** Heparinized blood is immediately inoculated into four tubes of EMJH semi-solid media, provided on request by the Department of Health Laboratory (DOHL). One, two, four and five drops of blood are inoculated into separate tubes. The tubes are gently rocked back and forth to disperse the inoculum, and incubated at room temperature in the dark. The tubes are transferred to the DOHL as soon as possible for incubation and examination.
- **Urine Culture.** A mid-stream sterile urine sample is immediately centrifuged. One, two and three drops of the sediment are inoculated into separate tubes containing EMJH semisolid media with 5-fluorouracil and gently rocked. The tubes are incubated as for blood cultures.
- **Serology.** On presentation, a red-topped tube of blood is drawn and sent to the DOHL along with date of onset and a summary of the patient's clinical history. A convalescent sample is drawn 2-3 weeks later. The DOHL reports screening Indirect Hemagglutination Assay (IHA) test results within a week, and the confirmatory Microscopic Agglutination Test (MAT) results from the Centers for Disease Control and Prevention (CDC) 1-2 months later.

Editor's Comment: Unless urine for culture is centrifuged and the pellet inoculated, the likelihood of recovery of the organism in urine culture, in our experience, is zero. In the DOH's experience, the IHA screening test's sensitivity is poor.[4] Currently, it is the only FDA-approved screening test for leptospirosis. In a recently completed study evaluating eight commercially-available screening tests, the overall sensitivity (35%) of the IHA was the lowest of the tests evaluated, with the highest showing a 70% sensitivity. The companies producing at least two other tests are applying for FDA approval for the tests. We anticipate a switch to a more sensitive screening test when it is FDA-approved. Finally, unless paired serum samples are submitted, the CDC will not test the samples, and confirmatory test results (MAT) will not be available.

Treatment

Antibiotic therapy in leptospirosis is controversial. However, the following antibiotics have been documented to reduce the severity and duration of acute leptospirosis in children >8 years of age and adults:

- Doxycycline* 100 mg. orally (P.O.) or intravenously (I.V.) every 12 hours**
- Ampicillin 500-1000 mg. P.O. or I.V. every 6 hours**
- Amoxicillin 500 mg. P.O. every 6 hours
- Ceftriaxone 1-2 g., I.V. every 24 hours **
- Penicillin G 1.5 million units I.V. every 6 hours** ***

---

* Doxycycline is the author's drug of choice, but cannot be used in children under 8 years of age, and in women who are pregnant.

** These antibiotics may be administered intravenously in patients who are vomiting.

*** When administering I.V. Penicillin, patients should be observed for possible Jarisch-Herxheimer reactions.

In children ≤8 years of age who are allergic to penicillins, erythromycin may be used.

In late-phase leptospirosis, third generation cephalosporins, Penicillin G, Ampicillin or Erythromycin may be used as described above.

Supportive therapy is also of vital importance, including I.V. fluids to maintain fluid and electrolyte balance to prevent renal failure, peritoneal or hemodialysis for renal failure, and respiratory support when indicated.

Summary

Leptospirosis should be considered in the patient with "flu-like" symptoms especially if there is a history of exposure to surface waters or mud. A normal or slightly elevated white count is common, as is thrombocytopenia. Mildly elevated liver function test values are usually present. Low normal or decreased serum albumin is present. Immediate treatment with appropriate antibiotics should be initiated if leptospirosis is suspected by history, physical and initial laboratory findings.

For more information, Dr. Goodman may be reached at P. O. Box 148, Kilauea, HI 96754, by telephone at (808) 828-1418, or e-mail at *goodman@hawaiian.net.*

GENERAL REFERENCES.

[1] Faine, S., Adler, B., Bolin, C., Perolat, P. *Leptospira* and Leptospirosis, 2nd Ed. 1999. MediSci, Melbourne, Australia, 272pp. This is currently the only monograph that is dedicated to leptospirosis. It provides an excellent in-depth review of all aspects of the disease. The cost is <$100 including postage; an order form is available on the internet at *www.med.monash.edu.au/micro/department/adler/order.rtf.*

[2] Farrar, W.E. Leptospira Species. In Mandell, G.L., Bennett, J.E., Dolin, R. (Eds), Principles and Practice of Infectious Diseases, 4th Ed. 1995. Churchill Livingstone, New York.

[3] Scott, G, and Coleman, T.J. Leptospirosis, In Cook, G. C. (Ed), Manson's Tropical Diseases, 20th Ed. 1996. W. B. Saunders, London.

[4] Effler, P.V., Domen, H.Y., Bragg, S.L., Aye, T., Sasaki, D.M. Evaluation of the Indirect Hemagglutination Assay for Diagnosis of Acute Leptospirosis in Hawaii. 2000. J. *Clin. Microbiol,*38(3):1081-1084.

Submitted by Jeffrey Goodman, M.D., General Practitioner, Kaua`i Medical Clinic at the North Shore Clinic, Kilauea, Kaua`i.

The Ten Commandments

(How to Perform a Disease Outbreak Investigation)

Each year, the Hawai`i Department of Health (DOH) Epidemiology Branch processes an average of 2,500 Communicable Disease Report (CDR) forms and conducts about 500 communicable disease investigations statewide. While approximately one-half of investigations initiated are the result of reports made by the public, the remaining are initiated as a result of CDR forms submitted by Hawai`i's medical community. Reports made by healthcare providers are important and of great value in protecting the people of Hawai`i.

Why Report?

Public health surveillance is the ongoing systematic collection, analysis, interpretation and dissemination of health data. It is the mechanism used to monitor the health of communities and provides a factual basis to set priorities, implement programs and take actions to promote and protect the public's health. Ultimately, the purpose for conducting surveillance is to learn the ongoing pattern of disease occurrence and the potential for disease in a population so that we can be effective in investigating, controlling, and preventing disease in that population. It is "information for action."

The Hawai`i Communicable Disease Reporting System is an information loop that involves health care providers, public health agencies, and the public. The cycle begins when cases of disease occur and are reported to the DOH. Diseases notifiable by law in the State of Hawai`i are specified in "Title 11, Administrative Rules, Department of Health, Chapter 156, Communicable Diseases." These regulations specify:

- The diseases and conditions that must be reported;
- Who is responsible for reporting;
- What information is required on each case of disease reported;
- How, to whom, and how quickly the information is to be reported; and
- Control measures to be taken for specified diseases.

The list of notifiable diseases includes those which (1) cause serious morbidity or death, (2) have the potential to affect additional people beyond the reported case, and (3) can be controlled or prevented with proper intervention. Two other circumstances that must be reported include: any outbreak or unusually high incidence of any disease, and any occurrence of an unusual disease of public health importance. A disease may also be immediately added to the list if it becomes important from a public health standpoint.

What Happens to Your Report?

When a case of notifiable disease is reported, one possible action is to search for the source or sources which, when found, may prompt further actions such as:

- Closure of a restaurant;
- Counseling and treatment of an asymptomatic patient;
- Withdrawal of a commercial product;
- Warnings to the public.

In addition, surveillance may be intensified to identify susceptible and potentially exposed persons who may be at risk of developing disease. When these persons are identified, they may be offered testing, counseling, treatment, vaccination, or prophylaxis as indicated.

As with all descriptive epidemiologic data, surveillance data is first analyzed in terms of time, place, and person. Current data is compared with some "expected" value to identify how they differ, and assess the importance of the difference. Most commonly, the expected value is based on figures for recent reporting periods or for the corresponding period of previous years. Data may be compared to specific islands, specific population groups, different states or national and international data.

When the surveillance system shows that the expected pattern for a disease deviates from its baseline, further investigation may be needed. Not all apparent increases in disease occurrence represent true increases. A change in diagnostic criteria, a new diagnostic test, new reporting requirements, or increased emphasis on active case detection can all result in an apparent increase in the incidence of a disease. Nonetheless, an apparent increase is considered real until proven otherwise.

The DOH may launch an investigation if only two or more cases of a disease are suspected to have a common source of infection. The suspicion might be aroused from finding an apparent commonality among the cases, such as patients' sex or age group, their place of residence or occupation, their surnames, or the time of onset of their illness. Even a single case can result in investigation and intervention, particularly if the disease is uncommon, potentially fatal, or indicative that others are potentially at risk.

Many outbreaks come to the attention of the DOH because an alert clinician is concerned enough to call. Members of affected groups are another important reporting source for apparent clusters of infectious disease. For example, someone may report that he and several co-workers came down with severe gastroenteritis after attending a banquet several nights earlier. The DOH's Epidemiology branch routinely handles calls from healthcare providers and the public regarding potential communicable disease outbreaks.

Investigating an Outbreak

One of the most exciting and challenging tasks facing the Epidemiology branch is investigating an outbreak. Frequently, the cause and source of the outbreak are unknown and sometimes large numbers of people are affected. Often, people in the community are concerned because they fear more people, including themselves, may be stricken unless the cause is found soon. Also there may be hostilities and defensiveness if an individual, product or company has been accused of being the cause.

continued on page 6

The Ten Commandments

continued from page 5

The primary reason to investigate an outbreak is to control and prevent further disease. Before appropriate control strategies can be recommended, we must identify where the outbreak is in its natural course. Are cases occurring in increasing numbers or is the outbreak just about over? Our approach will differ depending on the answers to these questions.

If cases are continuing to occur, our primary goal will be to prevent additional cases. Therefore, the objective of an investigation will be to assess the extent of the outbreak and the size and characteristics of the population at risk in order to design and implement appropriate control measures. If an outbreak appears to be almost over, our approach may be to identify factors that contributed to the outbreak in order to design and implement measures that would prevent similar outbreaks in the future.

The balance between control measures versus further investigation depends on how much is known about the cause, the source, and the mode of transmission of the agent. If little is known about the source and mode of transmission, further investigation is needed before appropriate control measures can be designed. In contrast, if we know the source and mode of transmission, control measures can be implemented immediately.

Ultimately, the decision regarding whether and how extensively to investigate an outbreak are influenced by characteristics of the problem itself: the severity of the illness, the source or mode of transmission, and the availability of prevention and control measures. It is particularly urgent to investigate an outbreak when the disease is severe (serious illness with high risk of hospitalization, complications or death), and has the potential to affect others unless prompt control measures are taken.

Steps of an Outbreak Investigation

In the investigation of an ongoing outbreak, working quickly is essential. Getting the right answer is also essential. Therefore, a systematic approach ensures that the investigation proceeds without missing important steps along the way. The approach below is described in conceptual order. In practice, however, several steps may be done at the same time, or the circumstances of the outbreak may dictate that a different order be followed.

Step 1: Preparation

Good preparation will greatly facilitate an investigation. An investigator must have the appropriate scientific knowledge, supplies, equipment and administrative support to conduct an investigation.

Step 2: Establish the Existence of an Outbreak

An outbreak or an epidemic is the occurrence of more cases of a disease than expected in a given area or among a specific group of people over a particular period of time. A cluster is an aggregation of cases in a given area over a particular period without regard to whether the number of cases is more than expected. In an outbreak or epidemic, it is generally presumed that the cases are related to one another or that they have a common cause.

Aggregates of cases may appear to be unusual, but an early task of an investigator will be to verify that a purported outbreak is indeed an outbreak. Some will turn out to be true outbreaks with a common cause, some will be sporadic and unrelated cases of the same disease, and others will turn out to be unrelated cases of similar but unrelated diseases.

Step 3: Verify the Diagnosis

The diagnosis of the case report must be confirmed! Clinical findings and laboratory results are closely reviewed. Specialized confirmation tests such as microbiology cultures, serology, DNA fingerprinting and polymerase chain reaction studies may be required. If so, the appropriate specimens, isolates, and other laboratory material must be secured as soon as possible. Patient interviews are also very helpful in generating hypotheses about disease etiology and spread.

Step 4: Establish a Case Definition; Identify and Count Cases

A case definition is a standard set of criteria for deciding whether an individual should be classified as having the disease under investigation. A case definition includes clinical criteria and, particularly in an outbreak, restrictions by time, place and person. Case criteria must be applied consistently and without bias to all persons under investigation and should not include an exposure or risk to be tested.

The cases that initially prompted the initial report are often only a small and non-representative fraction of the total number of cases. Many sources are used to identify cases and the investigator must be creative, aggressive, and diligent in identifying these sources. Methods for identifying cases must be appropriate for the setting and disease in question.

Case finding is directed at health care facilities where the diagnosis is likely to be made. In non-urgent situations a letter describing the situation and asking for reports may be sent to healthcare providers; this is called “stimulated or enhanced passive surveillance.” Telephoning or visiting facilities to more rapidly collect information on cases is called “active surveillance.”

In some outbreaks, DOH may decide to alert the public directly through the local media. For example, in outbreaks caused by a contaminated food product, announcements alert the public to avoid the implicated product and to see a physician if they had symptoms compatible with the disease in question.

If a restricted population is affected, such as cruise ship passengers or students in a school, and if a high proportion of the cases are unlikely to be diagnosed because of mild or asymptomatic cases, then a survey of this entire population may be conducted. In addition, case-patients may be asked if they know anyone else with the same condition.

Regardless of the disease under investigation, the following types of informa-

continued on page 9

Hawai`i Vaccines For Children (VFC) Program Update

Immunization is the most cost-effective method for protecting our youth against vaccine-preventable diseases. The Hawai`i Immunization Program is currently sponsoring Teen Vax, a program which provides free Td, Varicella, MMR, and Hepatitis B vaccines to physicians and clinics for use for all children ages 6-18 years regardless of the child's insurance coverage. These immunizations are recommended for children by the Centers for Disease Control and Prevention and the American Academy of Pediatrics. All current VFC providers are automatically pre-enrolled in this project. To encourage parents to immunize their children, most insurers have agreed not to charge patients the usual co-payment for providing the vaccine. If you are not a VFC-enrolled physician and would like to participate in the program, please call the VFC office at 586-8312 or 1-800-933-4832. We urge all immunization providers to make use of this vaccine before it's too late—remember the Teen Vax program will end on August 31, 2000.

VFC/Teen Vax Program Frequently Asked Questions:

1. Can I administer Hepatitis B vaccine to an 18 year old even though they would not be able to complete the series until after they turn 19?
Yes. The Teen Vax program will cover the vaccinations for teens above the age of 18 years if the series was started while the teen was 18 years or younger. Please note: you must complete the hepatitis B series while the teen is still 19 years of age. Persons 20 years of age and older require an adult dose of hepatitis B vaccine, which is not currently available through the VFC program.

2. May I continue to complete a Hepatitis B vaccine series AFTER the Teen Vax Program end date of August 31, 2000?
Yes. All children/adolescents who began an immunization series while the Teen Vax program was in effect will be allowed to complete that series even after the program end date.

3. Should I order Teen Vax vaccine separately from my VFC vaccines and should I store it separately from my VFC stock?
No. You should consolidate both your VFC/Teen Vax orders and storage.

4. May I charge an administration fee for administering Teen Vax vaccine?
Yes, a reasonable administration fee may be charged. Please contact the respective health plans for reimbursement information.

5. If a child received Hepatitis B vaccine during the Take 3 program, can I finish the series with Teen Vax vaccine?
Yes. Teen Vax vaccine, however, should be recorded on the green Teen Vax form, and not the blue Take 3 Hep B program form.

6. May I administer VFC/Teen Vax vaccine to 19-20 year olds (for example, as part of an EPSDT physical)?
No. VFC/Teen Vax vaccine is for adolescents up to age 18 years only. Vaccine may only be administered to persons over the age of 18 years if the vaccination series was started while the person was aged 18 or younger.

7. Is being "Native Hawaiian" alone still a criterion for VFC eligibility?
No. The Hawai`i VFC program is no longer able to offer VFC vaccine solely on the criterion of being Native Hawaiian.

8. Can I still place VFC vaccine orders via telephone?
No. Starting in January 2000 VFC has converted to a quarterly fax-only ordering system. If you would like to request order forms, please contact the VFC program at the numbers listed below. If you do not have a fax machine, please contact the VFC program so that other arrangements can be made.

9. What should I do with expired VFC vaccine?
Expired VFC vaccine should be returned via mail or courier to the Vaccines For Children Program. The VFC mailing address is: State of Hawai`i Department of Health, Hawai`i Immunization Program, P.O. Box 3378, Honolulu, HI 96801. Our physical address is 1250 Punchbowl St., #403, Honolulu, HI 96813. Providers are responsible for any shipping costs.

More News:

Enrollment/Profile Forms. In response to recommendations by federal VFC administrators who conducted a site visit in November 1999, the Hawai`i VFC staff has been making improvements to our program. We thank our providers for their continued patience and cooperation as the VFC program implements its new quarterly fax-only ordering system and updates its provider enrollment and profile forms. The VFC also thanks the majority of our providers for their timely submission of the enrollment and profile forms. For those who have not yet submitted their forms, please note that the VFC orders for vaccine will not be processed until the enrollment/profile forms have been received.

Vaccine Administration Visit Records/Eligibility Checksheets. The Hawai`i VFC program has also been busy reviewing the data that has been collected over the years from provider submission of Patient Eligibility Checksheets, Vaccine Administration Visit Records, and Take 3/Teen Vax Project Visit Records. As a reminder:

- Please remember that a Patient Eligibility Checksheet must be completed when a VFC eligible child visits your office or clinic for the first time.
- New Vaccine Administration Visit Records should be completed for each visit.
- All forms should be submitted to the Hawai`i VFC program on a weekly basis. VFC distributes Business Reply Envelopes to providers for this purpose. If you would like to request a supply of envelopes, please call the

continued on page 8

Vaccines for Children

continued from page 7

VFC program (see numbers listed below).

- You must complete the patient identification number, name, and address.
- All date fields must be entered in the MM/DD/YY format.
- Please print the vaccine type exactly as it appears in the form legend. We are aware that "VARIVAX" will not fit in the spaces provided. Please enter "VARIVA" when administering this vaccine.
- For your protection, you must enter the vaccine lot number and you must ensure that the lot number entered matches the vaccine administered. During VFC data review, we have encountered a number of records in which the lot number entered does not correspond to the vaccine administered. Should any adverse vaccine event ever occur, you must be able to determine the correct lot number of the vaccine administered.
- You must also enter the publication date of the Vaccine Information Statement or VIS (listed as "VIM Pub. Date"). **Federal law requires the distribution of the VIS and recording of the VIS publication date each time a vaccine is administered.** Please see insert for more information about Vaccine Information Statements.
- Please enter your **correct** provider code. If you are unsure of the correct code, please contact the Hawai`i Vaccines for Children program. Please include your provider name and address on every form submitted. If this is inconvenient, you may stamp the provider name and address next to the provider code.
- **Remember to print CLEARLY and LEGIBLY when completing forms.** Improper or inadequate coding of your client's immunization information will result in VFC database inaccuracies. Please protect yourself and your clients from missing and miskeyed data.

For more information, please contact the Vaccines for Children Program at (808) 586-8312 on O`ahu, at 1-800-933-4832 on the neighbor islands, or by fax at (808) 586-8302 in Honolulu.

Submitted by Heather Winfield, Vaccines for Children Program, Hawai`i Immu - nization Program, Epidemiology Branch.

Hansen's Disease

continued from page 1

no definitive laboratory tests or skin tests that precede an early clinical diagnosis. Therefore, awareness on the part of all health providers is an essential factor for the early diagnosis and treatment of HD resulting in discontinuance of transmission of the bacteria and prevention of disability.

Between 1992 and 1999, 159 new Hansen's Disease cases were diagnosed in Hawai'i, for an average of 20 per year. Immigrants from the Philippines accounted for 78 (49%) cases, followed by 28 (18%) from the Marshall Islands and 24 (15%) from the Federated States of Micronesia. During this time, there were seven (4%) new cases among Hawai'i residents.

During 1999, 22 new cases of Hansen's disease were diagnosed in Hawai`i. The Hansen's Disease Community Program follows approximately 600 contacts with annual screening. In addition during the past three years approximately 1,200 high risk people have been screened through the active surveillance approach. Two percent of those screened have been diagnosed with Hansen's disease.

Submitted by Mona R. Bomgaars, M.D., M.P.H., Chief, Hansen's Disease Branch.

ANNOUNCEMENT!

Proposed amendments to the lists of notifiable diseases for which reporting is required are available for review at *<http://www.hawaii.gov/doh /proposed rules/>*. A copy may also be requested by calling (808) 586-4586. Comments are welcome.

No Human Ehrlichiosis in Hawai'i

The April 5, 2000 issue of Mid-Week newspaper, mailed to homes on O'ahu, published an article entitled "Canine AIDS". It identified canine ehrlichiosis as growing "in leaps and bounds as a silent killer." The phrase "Canine AIDS" is unknown in veterinary medical literature with no known canine disease similar to human or feline immunodeficiency virus diseases. It also made reference to an outbreak of the disease in children in Waimanalo.

In response to the article, the Department of Health (DOH) contacted three health professionals; a University of Hawai'i School of Medicine infectious disease physician, and two medical professionals who work at the Waimanalo Health Center (WHC). All three denied any knowledge of human ehrlichiosis being diagnosed in the State. The Assistant Clinical Director at the WHC said no *Ehrlichia* diagnostic tests have been ordered, and no diagnosis of the disease has been made at the Center. The Department of Health (DOH) communications officer was quoted in the article confirming the outbreak. Patrick Johnston, the DOH director of communications, did not make that statement, and did not give permission to use his name or any information he discussed with the reporter of the article.

Canine ehrlichiosis has been known to be present in Hawai'i over 20 years, and is transmitted by the brown dog tick. However, the common species known in the dog is not known to infect humans. There have been three species of human *Ehrlichia* diagnosed in the mainland United States (U.S.). However the ticks associated with the transmission of the disease in the U.S. are not found in Hawai'i. The DOH has never received reports of diagnosed human ehrlichiosis.

Aloha Dr. Henri Minette!

At the end of March, Dr. Henri Minette "retired" for the second time from the State Department of Health (DOH) after 56 years serving in various capacities.

Dr. Minette moved to Hawai`i in 1944 to begin his long and productive career. He started as Laboratory Administrator for the DOH's District Health Office in Hilo, rebuilding the laboratory and establishing the first leptospirosis diagnostic laboratory in the State. In 1969, he moved to Honolulu as Chief of the DOH Laboratories Branch.

In 1971, he was appointed as the first Deputy Director of Environmental Health for the DOH, a position he held until he "retired" in 1974.

Since that time, Dr. Minette volunteered in the Department's Epidemiology Branch, updating and rewriting the DOH administrative rules for reporting of communicable diseases, answering immunization-related telephone requests, continuing his research interests in salmonellosis and leptospirosis, serving as co-chair of the DOH sponsored Leptospirosis Ad-Hoc Committee.

He was an instructor in Public Health Microbiology at the University of Hawaii School of Public Health between 1978-1980, and also published articles in scientific journals, and served as ghost writer for other DOH personnel - enabling publication of their work. In 1988, he was honored at a State gathering as a Volunteer of the Year.

"Dr. Minette was a mentor for many of us here at the DOH including myself," said Director of Health Dr. Bruce Anderson. "His great commitment to laboratory science, studies of infectious diseases and dedication to the DOH will be sorely missed. The Department will always be grateful beneficiaries of "Hank's" caring concerns for the health of all our citizens."

Dr. Minette graduated from the University of Arizona in 1939, and worked for the Arizona State laboratory before joining the war effort. A year after moving to Hawai`i, he married Hung-Vun Wong in Hilo. They raised two children; Henri III, an attorney, and Michelle, an anesthesiologist. While in Hilo, he took two years off for a Doctor of Public Health degree at Tulane University.

During his long and illustrious career, he was a member of seven professional societies, and published 19 articles in scientific and medical journals, including the definitive review of leptospirosis in poikilothermic vertebrates.

Submitted by David M. Sasaki, D.V.M., M.P.H., Veterinary Medical Officer, Epidemiology Branch, and Patrick I. Johnston, Communications Officer, Office of the Director.

The Ten Commandments

continued from page 6

tion needs to be collected about each case:

- Identifying information (name, address and telephone number);
- Demographic information (age, sex, race and occupation);
- Clinical information (date of onset, signs and symptoms, hospitalization and death);
- Risk factor information (must be tailored to the disease in question); and
- Reporter information (to request additional information and report findings).

Step 5: Perform Descriptive Epidemiology

As data is collected, an outbreak is characterized by time, place and person. An epidemic curve is constructed. Epidemic curves are simple graphic tools that can convey surprising amounts of information concisely characterizing the outbreak. Individual cases are graphed over time. Additional data, such as mortality, location, or comorbid factors, may be coded and superimposed on this curve. Spot maps of the location of cases can also be generated. This process is called "descriptive epidemiology" because it describes what has occurred in the population under study. This step is critical for several reasons. First, looking at the data carefully allows the identification of reliable and informative information. Second, it provides a comprehensive description of an outbreak over time and by geographic extent and the populations affected. This description can be assessed to develop causal hypotheses that can be tested using analytic epidemiology. Descriptive epidemiology should be updated as additional data is collected.

Step 6: Develop the Hypotheses

The next conceptual step in an investigation is formulating hypotheses; in reality we usually begin to generate hypotheses with the first phone call. At this point in an investigation, however, the hypotheses will be more accurately focused. It should address the source of the agent, the mode and vehicle or vector of transmission, and exposures that caused the disease. It also should be testable, since evaluating hypotheses is one of the goals of the next step in an investigation.

Hypotheses may be generated in a variety of ways. First, what is known about the disease itself is considered: What is the agent's usual reservoir? How is it usually transmitted? What vehicles are commonly implicated? What are the known risk factors?

Another way to generate hypotheses is to talk to case-patients, visit their homes and look through their refrigerators and shelves. Such conversations about possible exposures should be open-ended and wide-ranging, not necessarily confined to the known sources and vehicles. Outliers can also provide important clues.

Descriptive epidemiology of the outbreak often provides some hypotheses. If the epidemic curve points to a narrow period of exposures, what events occurred

continued on page 10

The Ten Commandments

continued from page 9

around that time? Why do the people living in a particular area have the highest attack rates? Why are some groups with particular age, sex or other person characteristics at greater risk than other groups with different person characteristics? These types of questions should lead to hypotheses that can be tested by analytic techniques.

Step 7: Evaluate the Hypotheses
This step evaluates the credibility of the hypotheses. Evaluation can occur in one of two ways: either by comparison with established facts, or by using analytic epidemiology to quantify relationships.

The first method is used when the clinical, laboratory, environmental and/or epidemiologic evidence so obviously supports the hypotheses that formal hypothesis testing is unnecessary. Often, however, the circumstances are not as straightforward and analytic epidemiology is used to test hypotheses. The essential feature of analytic epidemiology is a comparison group that allows quantification of relationships between exposures and disease to test hypotheses about causal relationships. Comparison groups are used in two types of studies: cohort and case-control.

In a cohort study all members of a population under study are followed over time for evidence of the appearance of the disease in question. The presence or absence of the suspected risk factors for the disease is recorded at the beginning of the study and throughout the observation period. In a case-control study, the case-patient is an individual who is already infected or ill. A group of these case individuals is compared with a control group of individuals who do not have the infection or disease of interest. These groups are compared for the presence or history of exposure to potential risk factors. The presence of risk factors with statistically significant differences between the case-patients and the control group suggests a causal association between those factors and the infection or disease.

A cohort study is the best technique for outbreaks in small, well-defined populations. For example, a cohort study would be used to investigate an outbreak of gastroenteritis among wedding attendees when a list of guests was available.

In many outbreak settings the population is not well defined and cohort studies are not feasible. Cases have been identified in an earlier step of the investigation. A case-control study enables analysis of this type of outbreak.

Step 8: Refine the Hypotheses and Execute Additional Studies
Analytic studies are sometimes unrevealing. This is particularly true if the hypotheses were not well founded. It is an axiom of field epidemiology that without good hypotheses, analytic epidemiology is likely to be a waste of time. When analytic epidemiology is unrevealing, hypotheses must be reconsidered and new vehicles or modes of transmission should be considered.

Even when analytic study identifies an association between an exposure and disease, hypotheses will need to be refined. Sometimes more specific exposure histories are needed. Sometimes a more specific control group is needed to test a more specific hypothesis.

Step 9: Implement Control and Prevention Measures
In most outbreak investigations, the primary goal will be control and prevention. Control measures should be implemented as soon as possible, and aimed at the weak link or links in the chain of infection. Control measures may target the specific agent, sources, or reservoir. For example: an outbreak might be controlled by destroying contaminated foods, destroying mosquito-breeding sites, or removing an infectious food handler from the job.

In other situations, control measures may be directed at interrupting transmission or exposure. For example, nursing home residents could be "cohorted " to prevent transmission to others. Travelers wishing to reduce their risk of acquiring Lyme disease could be instructed to avoid wooded areas or to wear insect repellent and protective clothing.

Step 10: Communicate the Findings
The final task in an investigation is to communicate findings. This communication usually takes two forms: (1) an oral briefing and (2) a written report.

The persons responsible for implementing control and prevention measures should attend the oral briefing. Since these persons are usually not epidemiologists, findings must be presented in clear and convincing fashion with appropriate and justifiable recommendations for action. This presentation is an opportunity to describe what occurred, what was found, and what should be done about it.

A report in the usual scientific format of introduction, background, methods, results, discussion, and recommendations should also be written. Formal presentation of recommendations provides a blueprint for action. It also serves as a record of performance, a document for potential legal issues and a reference if a similar situation is encountered in the future. Finally, a report that finds its way into the public health literature serves the broader purpose of contributing to the knowledge base of epidemiology and public health.

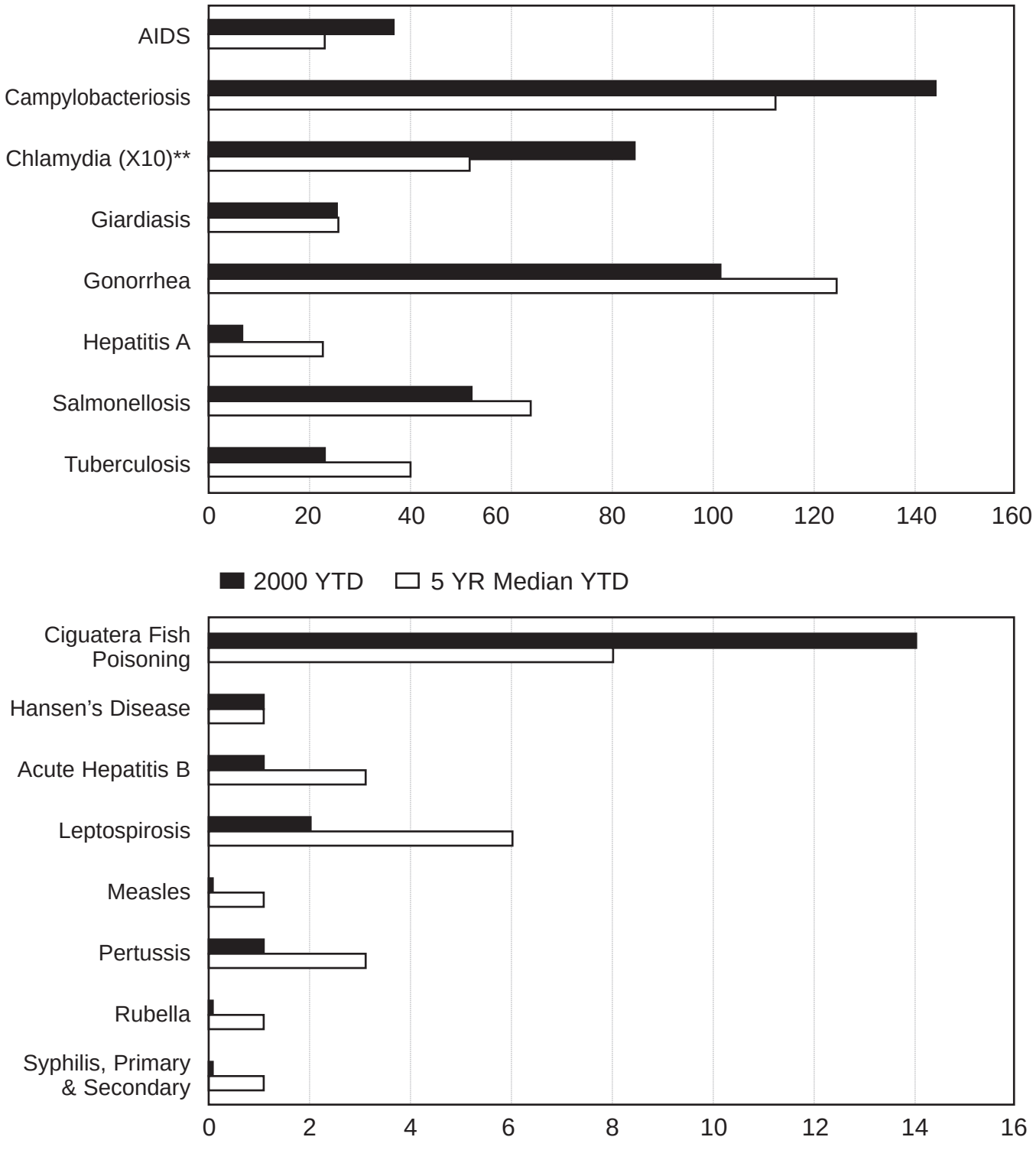
For more information about reporting, and prevention and control of communicable diseases, please call the Epidemiology Branch on O`ahu at 586-4586; Hawai`i at 933-0912; Kaua`i at 241-3563; and Maui at 984-8213. Copies of the Hawai`i Administrative Rules may be obtained by calling the Epidemiology Branch or may be downloaded from the Hawaii DOH Communicable Disease Division website at: *www.hawaii.gov/doh/resource/commdisease.html.*

REFERENCE:
This article is based on "Principles of Epidemiology – An Introduction to Applied Epidemiology and Biostatistics," a Centers for Disease Control and Prevention self-study course available at: *www.cdc.gov.*

Submitted by Michele Nakata, Epidemiological Specialist, Investigations Section, Epidemiology Branch.

Communicable Disease Surveillance

Selected Diseases by Date of Report*
Hawai'i, 2000 Year-to-date Through March



* These data do not agree with tables using date of onset or date of diagnosis.
** The number of cases graphed represent 10% of the total number reported.

State of Hawai'i
Department of Health
Epidemiology Branch
P.O. Box 3378
Honolulu, Hawai'i 96801-3378

Address Service Requested

BULK RATE
U.S. POSTAGE
PAID
Honolulu,
Hawai'i
Permit No. 373

Communicable Disease Report

Philip P. Bruno, D.O., F.A.C.P., Chief, Communicable Disease Division
Paul V. Effler, M.D., M.P.H., State Epidemiologist

March/April 2000

CONTENTS